

Ambient Air Monitoring Report

**Rivermines
Park Hills, Missouri**

***Prepared for
The Doe Run Company***

August 2012



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November 2, 2012

Mr. Mark Nations
The Doe Run Company
P.O. Box 1633
Desloge, Missouri 63601

Re: Ambient Air Monitoring Report – Rivermines Site

Dear Mr. Nations:

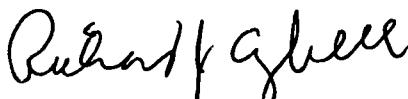
Please find attached the August 2012 “*Ambient Air Monitoring Report*” for The Doe Run Company at the Rivermines Sites, located near Park Hills, Missouri.

This report will include the following:

- **Glossary of Terms** – Listing of the abbreviations used for each parameter and unit.
- **Ambient Air Quality Standards** – Lists the maximum allowable concentrations for the measured parameters.
- **TSP, Lead & PM₁₀ Particulate Summaries** – Includes the averages of each monitored parameter, which relates to the federal standards.
- **Particulate and Lead Analysis Spreadsheets**.
- **Lab Results (lead & cadmium)** – Lab reports from Inovatia Laboratories, LLC.
- **Meteorological Data Printouts** – This supplies printouts of each parameter.

Barr Engineering Company offers this report as an independent laboratory. This includes the weighing of filters, obtaining lead and cadmium analysis, compiling the data, and preparing the report. No interpretation of the data or analysis of the results is implied or intended. Should you have any questions regarding this report, please call.

Respectfully,



Richard J. Campbell, PE
Chemical Engineer
Senior Environmental Consultant

c: Kathy Rangen
Jason Gunter
Ty Morris

GLOSSARY OF TERMS

$\mu\text{g}/\text{m}^3$	Micrograms per Cubic Meter
mph	Miles per Hour
Wind Direction	Degrees from True North
TSP	Total Suspended Particulate
PM ₁₀	Particulate Matter - 10 Microns or Less
mmHg	Millimeters of Mercury

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

PM ₁₀ – Particulate Matter	24-Hour*	Annual Maximum	150 $\mu\text{g}/\text{m}^3$
Lead	Calendar Quarter	Arithmetic Mean	1.5 $\mu\text{g}/\text{m}^3$
Lead	Rolling 3-Month Average	Arithmetic Mean	0.15 $\mu\text{g}/\text{m}^3$

TSP (Total Suspended Particulate) – There are no Federal Standards that apply solely for TSP.

*This standard must be exceeded more than once a year to constitute a violation.



TSP and Lead Concentration Summary

Rivermines
Park Hills, Missouri

2012

Date	TSP Big River #4 ($\mu\text{g}/\text{m}^3$)	TSP South #1 ($\mu\text{g}/\text{m}^3$)	TSP North #2 ($\mu\text{g}/\text{m}^3$)	TSP East #3 ($\mu\text{g}/\text{m}^3$)	LEAD Big River #4 ($\mu\text{g}/\text{m}^3$)	LEAD South #1 ($\mu\text{g}/\text{m}^3$)	LEAD North #2 ($\mu\text{g}/\text{m}^3$)	LEAD East #3 ($\mu\text{g}/\text{m}^3$)
8/1/12	44	46	40	46	0.028	0.056	0.037	0.027
8/2/12	33	27	43	30	0.026	0.008	0.085	0.012
8/3/12	40	41	34	35	0.012	0.073	0.020	0.016
8/6/12	29	37	31	23	0.017	0.094	0.096	0.006
8/7/12	31	28	25	24	0.013	0.017	0.025	0.010
8/8/12	41	70	35	39	0.024	0.201	0.027	0.061
8/9/12	34	82	24	31	0.015	0.268	0.000	0.007
8/10/12	18	64	14	18	0.009	0.293	0.007	0.011
8/13/12	43	133	26	46	0.029	0.533	0.008	0.145
8/14/12	39	79	18	25	0.041	0.290	0.013	0.016
8/15/12	58	29	31	27	0.044	0.015	0.064	0.007
8/16/12	39	44	37	44	0.033	0.079	0.050	0.084
8/17/12	27	25	19	20	0.019	0.022	0.000	0.023
8/20/12	50	80	22	30	0.029	0.260	0.013	0.031
8/21/12	52	60	33	50	0.039	0.067	0.030	0.070
8/22/12	63	69	38	46	0.046	0.433	0.035	0.176
8/23/12	66	64	44	62	0.063	0.094	0.036	0.039
8/24/12	48	44	43	47	0.019	0.016	0.048	0.037
8/27/12	35	83	30	30	0.030	0.341	0.030	0.027
8/28/12	48	44	37	31	0.017	0.060	0.007	0.010
8/29/12	60	43	34	31	0.048	0.094	0.006	0.012
8/30/12	33	28	25	28	0.012	0.024	0.008	0.014
8/31/12	15	14	13	13	0.000	0.000	0.000	0.000
Monthly Average	41	54	30	34	0.027	0.145	0.028	0.037
July 2012					0.035	0.069	0.026	0.034
Jun 2012					0.031	0.089	0.054	0.026
Rolling 3-month Average					0.03	0.10	0.04	0.03
					3-month Average Lead NAAQS $\mu\text{g}/\text{m}^3$			
					0.15			

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.



Particulate Summary

Rivermines
Park Hills, Missouri

2012

Date	PM ₁₀ Big River #4 ($\mu\text{g}/\text{m}^3$)	PM ₁₀ South #1 ($\mu\text{g}/\text{m}^3$)	PM ₁₀ North #2 ($\mu\text{g}/\text{m}^3$)	PM ₁₀ East #3 ($\mu\text{g}/\text{m}^3$)	PM ₁₀ NAAQS ($\mu\text{g}/\text{m}^3$)
1-Aug	23	28	28	28	150
4-Aug	23	23	22	24	150
7-Aug	17	20	20	12	150
10-Aug	10	35	8	10	150
13-Aug	15	56	12	15	150
16-Aug	28	21	25	23	150
19-Aug	15	14	13	14	150
22-Aug	25	27	21	23	150
25-Aug	16	14	15	18	150
28-Aug	21	24	20	21	150
31-Aug	9	10	9	9	150
Monthly Average	18	25	18	18	

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.

Particulate and Lead Analysis

TSP and Lead Analysis

BARR

The Doe Run Company

SAMPLER ID P4557

Big River Site #4- Primary

Sample Date 2012	Filter ID	TSP Filter Net Wt. g	Lead Total Wt. μg	T _w C	P _w mmHg	P _r mmHg	Ratio P _r /P _w	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Concentrations TSP μg/m ³	Lead μg/m ³
8/1/2012	8594828	0.0753	47	30	741.3	36.8	0.950	1.254	1.203	23.69	1710	44	0.028
8/2/2012	8594817	0.0580	45	30	739.3	36.8	0.950	1.254	1.199	23.72	1707	33	0.028
8/3/2012	8594808	0.0688	21	29	739.4	36.7	0.950	1.252	1.201	23.73	1710	40	0.012
8/6/2012	8607999	0.0507	30	25	746.1	36.2	0.951	1.247	1.222	23.56	1728	29	0.017
8/7/2012	8607989	0.0528	23	27	743.8	36.4	0.951	1.249	1.215	23.81	1720	31	0.013
8/8/2012	8607980	0.0707	42	28	742.8	36.5	0.951	1.250	1.210	23.88	1720	41	0.024
8/9/2012	8607971	0.0582	28	28	740.8	36.5	0.951	1.250	1.207	23.73	1718	34	0.015
8/10/2012	8607981	0.0313	15	22	742.6	35.8	0.952	1.240	1.224	23.35	1715	18	0.009
8/13/2012	8607951	0.0723	48	24	741.5	36.1	0.951	1.245	1.216	23.31	1701	43	0.029
8/14/2012	8607942	0.0675	72	22	743.9	35.8	0.952	1.240	1.227	23.61	1738	39	0.041
8/15/2012	8607934	0.1003	77	24	743.1	36.1	0.951	1.245	1.219	23.71	1734	58	0.044
8/16/2012	8607923	0.0675	58	28	742.4	36.2	0.951	1.247	1.215	23.71	1729	39	0.033
8/17/2012	8607915	0.0479	34	21	744.5	35.7	0.952	1.240	1.230	23.72	1750	27	0.019
8/20/2012	8607904	0.0877	51	21	743.8	35.7	0.952	1.239	1.229	23.74	1751	50	0.029
8/21/2012	8811295	0.0901	68	23	744.6	35.9	0.952	1.242	1.228	23.66	1740	52	0.039
8/22/2012	8811286	0.1098	80	24	745.1	36.1	0.952	1.245	1.222	23.58	1729	63	0.046
8/23/2012	8811277	0.1141	108	26	745.0	36.3	0.951	1.248	1.218	23.56	1722	66	0.063
8/24/2012	8811267	0.0827	32	26	744.8	36.3	0.951	1.248	1.218	23.55	1720	48	0.019
8/27/2012	8811258	0.0801	52	24	745.5	36.1	0.952	1.245	1.223	23.67	1737	35	0.030
8/28/2012	8811249	0.0842	30	24	745.6	36.0	0.952	1.244	1.225	23.68	1741	48	0.017
8/29/2012	8811240	0.1047	83	24	744.3	36.0	0.952	1.244	1.223	23.68	1737	60	0.048
8/30/2012	8811229	0.0564	20	28	743.6	36.3	0.951	1.248	1.218	23.52	1718	33	0.012
8/31/2012	8811219	0.0256	< 10	25	742.8	36.1	0.951	1.245	1.218	23.71	1733	15	0.000

Data Captured	TSP	Lead
Valid Samples:	23	23
Scheduled Samples:	23	23
Percent Data Captured:	100%	100%

Monthly Average:	41	0.027
Standard Deviation:	13	0.015
Maximum:	66	0.063
Minimum:	15	0.000

NOTES

DEFINITIONS and CALCULATIONS

T_w = average temperature in degrees Celsius

P_w = average station pressure in millimeters of mercury

P_r = (((Temp in °Kelvin * Temp Slope))-Temp Int.)*1.868

P_r = ((Temp in °Kelvin * 0.0684)-(0.4213))*1.868

P_r/P_w = pressure ratio of P_r and P_w = 1 - P_w/P_r

Q_a = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in μg/std m³

Lead = mass concentration in μg/std m³



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P2940

Elvins Rivermines Site #1 by Office

Sample Date 2012	Filter ID	TSP Filter Net Wt. g	Lead Total Wt. μg	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Concentrations TSP μg/m ³	Lead μg/m ³
8/1/2012	8594823	0.0791	96	30	741.3	36.8	0.950	1.260	1.209	23.77	1724	46	0.056
8/2/2012	8594814	0.0457	15	30	739.3	36.8	0.950	1.260	1.205	23.80	1721	27	0.008
8/3/2012	8594805	0.0704	125	29	739.4	36.7	0.950	1.258	1.207	23.71	1717	41	0.073
8/6/2012	8607996	0.0638	163	25	746.1	36.2	0.951	1.252	1.228	23.67	1744	37	0.094
8/7/2012	8607986	0.0490	29	27	743.8	36.4	0.951	1.255	1.220	23.84	1745	28	0.017
8/8/2012	8607977	0.1208	349	28	742.8	36.5	0.951	1.256	1.216	23.78	1735	70	0.201
8/9/2012	8607968	0.1415	461	28	740.6	36.5	0.951	1.256	1.213	23.65	1721	82	0.268
8/10/2012	8607958	0.1127	515	22	742.6	35.8	0.952	1.246	1.230	23.81	1758	64	0.293
8/13/2012	8607948	0.2313	928	24	741.5	36.1	0.951	1.251	1.222	23.76	1742	133	0.533
8/14/2012	8607939	0.1391	510	22	743.9	35.8	0.952	1.246	1.233	23.76	1758	79	0.290
8/15/2012	8607931	0.0502	26	24	743.1	36.1	0.951	1.251	1.225	23.80	1749	29	0.015
8/16/2012	8607920	0.0766	138	26	742.4	36.2	0.951	1.252	1.221	23.67	1733	44	0.079
8/17/2012	8607912	0.0443	39	21	744.5	35.7	0.952	1.245	1.235	23.83	1766	25	0.022
8/20/2012	8607901	0.1409	459	21	743.8	35.7	0.952	1.245	1.235	23.83	1765	80	0.260
8/21/2012	8611292	0.1049	117	23	744.6	35.9	0.952	1.248	1.232	23.78	1757	60	0.067
8/22/2012	8611283	0.1206	752	24	745.1	36.1	0.952	1.251	1.228	23.56	1736	69	0.433
8/23/2012	8611274	0.1115	162	26	745.0	36.3	0.951	1.254	1.223	23.60	1732	64	0.094
8/24/2012	8611264	0.0756	28	26	744.8	36.3	0.951	1.254	1.223	23.64	1735	44	0.016
8/27/2012	8611255	0.1461	599	24	745.5	36.1	0.952	1.251	1.229	23.81	1756	83	0.341
8/28/2012	8611246	0.0772	106	24	745.6	36.0	0.952	1.250	1.231	23.71	1751	44	0.060
8/29/2012	8611237	0.0757	164	24	744.3	36.0	0.952	1.250	1.228	23.70	1747	43	0.094
8/30/2012	8611226	0.0484	41	26	743.6	36.3	0.951	1.254	1.221	23.51	1722	28	0.024
8/31/2012	8611216	0.0252	< 10	25	742.8	36.1	0.951	1.251	1.224	23.84	1751	14	0.000

Data Captured	TSP	Lead
Valid Samples:	23	23
Scheduled Samples:	23	23
Percent Data Captured:	100%	100%

Monthly Average:	54	0.145
Standard Deviation:	27	0.151
Maximum:	133	0.533
Minimum:	14	0.000

NOTES

Filter Blank	Nominal Airflow	Tolerance $\pm 5 \mu\text{m}^3$
8/30/2012 8611223	0.0007 < 10 25 760.0 36.2 0.952 1.234 1.233 24.00 1776	0.4 0.000

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celsius

P_{av} = average station pressure in millimeters of mercury

P_f = ((Temp in °Kelvin * Temp Slope)+Temp Int.)*1.868

P_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

P_f/P_a = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}

Q_a = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in $\mu\text{g}/\text{std m}^3$

Lead = mass concentration in $\mu\text{g}/\text{std m}^3$



TSP and Lead Analysis

The Doe Run Company

Sampler ID P2941		Elvins Rivermines Site #2 Wood & Barton											
Sample Date 2012	Filter ID	TSP Filter Net Wt. g	Lead Total Wt. μg	T _{av} C	P _{av} mmHg	P _t mmHg	Ratio P _t /P _{av}	Q _s m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Concentrations TSP μg/m ³	Lead μg/m ³
8/1/2012	8594825	0.0675	64	30	741.3	36.8	0.950	1.243	1.182	23.79	1702	40	0.037
8/2/2012	8594818	0.0730	143	30	739.3	36.8	0.950	1.243	1.189	23.77	1695	43	0.085
8/3/2012	8594807	0.0581	33	29	739.4	36.7	0.950	1.242	1.191	23.80	1701	34	0.020
8/6/2012	8607998	0.0538	165	25	746.1	36.2	0.951	1.236	1.211	23.61	1716	31	0.098
8/7/2012	8607988	0.0440	44	27	743.8	36.4	0.951	1.238	1.204	23.96	1731	25	0.025
8/8/2012	8607979	0.0598	47	28	742.8	36.5	0.951	1.240	1.200	23.87	1719	35	0.027
8/9/2012	8607970	0.0418	< 10	28	740.8	36.5	0.951	1.239	1.197	23.75	1705	24	0.000
8/10/2012	8607980	0.0240	12	22	742.6	35.8	0.952	1.230	1.214	23.84	1737	14	0.007
8/13/2012	8607950	0.0446	13	24	741.5	36.1	0.951	1.234	1.208	23.66	1711	26	0.008
8/14/2012	8607941	0.0315	22	22	743.9	35.8	0.952	1.230	1.217	23.90	1745	18	0.013
8/15/2012	8607833	0.0538	111	24	743.1	36.1	0.951	1.234	1.208	23.83	1728	31	0.064
8/16/2012	8607822	0.0840	86	28	742.4	36.2	0.951	1.236	1.204	23.77	1718	37	0.050
8/17/2012	8607914	0.0334	< 10	21	744.5	35.7	0.952	1.229	1.219	23.87	1748	19	0.000
8/20/2012	8607903	0.0391	22	21	743.8	35.7	0.952	1.228	1.218	23.83	1742	22	0.013
8/21/2012	8611294	0.0573	53	23	744.8	35.9	0.952	1.231	1.215	23.82	1737	33	0.030
8/22/2012	8611285	0.0844	58	24	745.1	36.1	0.952	1.234	1.212	23.58	1714	38	0.035
8/23/2012	8611276	0.0753	62	26	745.0	36.3	0.951	1.237	1.207	23.84	1727	44	0.036
8/24/2012	8611265	0.0745	83	26	744.8	36.3	0.951	1.237	1.207	23.98	1735	43	0.048
8/27/2012	8611257	0.0525	52	24	745.5	36.1	0.952	1.234	1.213	23.78	1730	30	0.030
8/28/2012	8611248	0.0644	12	24	745.8	36.0	0.952	1.233	1.214	23.84	1737	37	0.007
8/29/2012	8611239	0.0598	11	24	744.3	36.0	0.952	1.233	1.212	23.81	1731	34	0.006
8/30/2012	8611228	0.0419	13	28	743.8	36.3	0.951	1.237	1.205	23.58	1704	25	0.008
8/31/2012	8611218	0.0229	< 10	25	742.8	36.1	0.951	1.234	1.207	23.79	1724	13	0.000
Data Captured	TSP	Lead											
Valid Samples:	23	23											
Scheduled Samples:	23	23											
Percent Data Captured:	100%	100%											
Monthly Average:	30	0.028											
Standard Deviation:	9	0.028											
Maximum:	44	0.086											
Minimum:	13	0.000											

NOTES

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celsius

P_{av} = average station pressure in millimeters of mercury

P_t = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868

P_s = ((Temp in °Kelvin * 0.0684)+(-0.4213))*1.868

P_r/P_s = pressure ratio of P_t and P_{av} = 1 - P_t/P_{av}

Q_s = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in μg/std m³

Lead = mass concentration in μg/std m³



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P4475

Elvins Rivermines Site #3 WTP

Sample Date 2012	Filter ID	TSP Filter Net Wt. g	Lead Total Wt. µg	T _w C	P _w mmHg	P _t mmHg	Ratio P _t /P _w	Q _s m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Concentrations TSP µg/m ³	Lead µg/m ³
8/1/2012	8594824	0.0770	46	30	741.3	36.8	0.950	1.240	1.190	23.68	1689	46	0.027
8/2/2012	8594815	0.0513	20	30	739.3	36.8	0.950	1.240	1.188	23.73	1689	30	0.012
8/3/2012	8594806	0.0587	28	29	739.4	36.7	0.950	1.239	1.188	23.72	1691	35	0.016
8/6/2012	8607997	0.0386	11	25	746.1	36.2	0.951	1.233	1.209	23.64	1715	23	0.008
8/7/2012	8607987	0.0407	17	27	743.8	36.4	0.951	1.235	1.201	23.71	1709	24	0.010
8/8/2012	8607978	-0.0685	103	28	742.8	36.5	0.951	1.237	1.197	23.65	1699	39	0.061
8/9/2012	8607989	0.0519	11	28	740.6	36.5	0.951	1.236	1.194	23.68	1698	31	0.007
8/10/2012	8607959	0.0304	19	22	742.6	35.8	0.952	1.227	1.212	23.70	1723	18	0.011
8/13/2012	8607949	0.0779	248	24	741.5	36.1	0.951	1.231	1.203	23.57	1701	46	0.145
8/14/2012	8607940	0.0434	27	22	743.9	35.8	0.952	1.227	1.214	23.70	1727	25	0.018
8/15/2012	8607932	0.0489	12	24	743.1	36.1	0.951	1.231	1.208	23.62	1709	27	0.007
8/16/2012	8607921	0.0747	143	26	742.4	36.2	0.951	1.233	1.202	23.68	1707	44	0.084
8/17/2012	8607913	0.0346	39	21	744.5	35.7	0.952	1.227	1.217	23.75	1734	20	0.023
8/20/2012	8607902	0.0512	53	21	743.8	35.7	0.952	1.226	1.216	23.68	1728	30	0.031
8/21/2012	8611293	0.0873	122	23	744.6	35.9	0.952	1.229	1.213	23.82	1733	50	0.070
8/22/2012	8611284	0.0795	302	24	745.1	36.1	0.952	1.232	1.209	23.59	1711	46	0.178
8/23/2012	8611275	0.1087	68	28	745.0	36.3	0.951	1.234	1.204	23.81	1721	62	0.039
8/24/2012	8611266	0.0801	64	28	744.8	36.3	0.951	1.234	1.204	23.79	1719	47	0.037
8/27/2012	8611256	0.0518	47	24	745.5	36.1	0.952	1.231	1.210	23.74	1724	30	0.027
8/28/2012	8611247	0.0539	18	24	745.8	36.0	0.952	1.230	1.212	23.75	1727	31	0.010
8/29/2012	8611238	0.0538	21	24	744.3	36.0	0.952	1.231	1.209	23.66	1717	31	0.012
8/30/2012	8611227	0.0488	24	26	743.6	36.3	0.951	1.234	1.202	23.49	1694	28	0.014
8/31/2012	8611217	0.0226	< 10	25	742.8	36.1	0.951	1.232	1.205	23.70	1713	13	0.000

Data Captured	TSP	Lead
Valid Samples:	23	23
Scheduled Samples:	23	23
Percent Data Captured:	100%	100%

Monthly Average:	34	0.037
Standard Deviation:	12	0.045
Maximum:	62	0.178
Minimum:	13	0.000

NOTES

DEFINITIONS and CALCULATIONS

T_w = average temperature in degrees Celsius

P_w = average station pressure in millimeters of mercury

P_t = (((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868

P_t = ((Temp in °Kelvin * 0.0684)+(-0.4213))*1.868

P_t/P_w = pressure ratio of P_t and P_w = 1 - P_t/P_w

Q_s = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in µg/std m³

Lead = mass concentration in µg/std m³



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P6609

Big River Site #4 - QA

Sample Date	Filter ID	TSP Filter Net Wt.	Lead Total Wt.	T_{av}	P_{av}	P_f	Ratio P_f/P_{av}	Q_a	Q_{std}	Elapsed Time	Sample Volume V_{std}	Mass Concentrations TSP	Lead
2012		g	μg	C	mmHg	mmHg		m^3/min	m^3/min	hr	m^3	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$
8/2/2012	8594827	0.0594	52	30	739.3	36.8	0.950	1.245	1.191	23.64	1690	35	0.031
8/7/2012	8608000	0.0518	17	27	743.8	36.4	0.951	1.240	1.206	23.61	1708	30	0.010
8/9/2012	8807972	0.0577	28	28	740.6	36.5	0.951	1.241	1.199	23.82	1699	34	0.017
8/14/2012	8607952	0.0686	57	22	743.9	35.8	0.952	1.232	1.219	23.58	1725	40	0.033
8/16/2012	8607924	0.0666	57	26	742.4	36.2	0.951	1.238	1.207	23.64	1711	39	0.033
8/21/2012	8607905	0.0851	72	23	744.6	35.9	0.952	1.234	1.218	23.62	1726	49	0.042
8/23/2012	8611278	0.1243	110	26	745.0	36.3	0.951	1.239	1.209	23.59	1712	73	0.064
8/28/2012	8611259	0.0847	29	24	745.6	36.0	0.952	1.236	1.217	23.63	1726	49	0.017
8/30/2012	8611230	0.0578	19	26	743.6	36.3	0.951	1.239	1.207	23.43	1697	34	0.011

Valid Samples:	9	9
Scheduled Samples:	9	9
Percent Data Captured:	100%	100%

Monthly Average:	43	0.029
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Standard Deviation:	13	0.017
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Maximum:	73	0.064
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Minimum:	30	0.010
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NOTES

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

Q_a = look up table volumetric flow rate

P_{av} = average station pressure in millimeters of mercury

Q_{std} = total sample volumetric flow rate corrected to standard conditions

P_f = (((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868

V_{std} = total sample volume corrected to standard conditions

P_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

TSP = mass concentration in $\mu\text{g}/\text{std m}^3$

P_f/P_{av} = pressure ratio of P_f and P_{av} = $1 - Pf/Pav$

Lead = mass concentration in $\mu\text{g}/\text{std m}^3$



PM₁₀ Analysis

The Doe Run Company

Big River Site #4- Primary																			
Sampler ID P2952		PM10 Filter Net Wt.	T _{av}	P _{av}	P _f	Ratio	Q _s	Q _{std}	Elapsed Time	Sample Volume V _{std}	Mass Conc. PM ₁₀ µg/m ³								
Sample Date	Filter ID	g	C	mmHg	mmHg	P _o /P _s	m ³ /min	m ³ /min	hr	m ³	µg/m ³								
8/1/2012	264651	0.0359	30	741.3	36.8	0.950	1.158	1.111	23.63	1575	23								
8/4/2012	264641	0.0358	28	741.8	36.5	0.951	1.155	1.118	23.73	1589	23								
8/7/2012	264631	0.0278	27	743.8	36.4	0.951	1.154	1.122	23.66	1592	17								
8/10/2012	264621	0.0168	22	742.6	35.8	0.952	1.148	1.131	23.70	1609	10								
8/13/2012	264613	0.0237	24	741.5	36.1	0.951	1.150	1.124	23.69	1597	15								
8/16/2012	264602	0.0448	26	742.4	36.2	0.951	1.151	1.122	23.68	1594	28								
8/19/2012	264093	0.0242	21	742.7	35.7	0.952	1.145	1.132	23.68	1609	15								
8/22/2012	264084	0.0407	24	745.1	36.1	0.952	1.150	1.129	23.61	1600	25								
8/25/2012	264073	0.0252	24	744.5	36.0	0.952	1.149	1.130	23.71	1607	16								
8/28/2012	264064	0.0335	24	745.6	36.0	0.952	1.149	1.132	23.60	1603	21								
8/31/2012	264055	0.0145	25	742.8	36.1	0.951	1.150	1.125	23.89	1600	9								
Valid Samples:	11									Monthly Average:	18								
Scheduled Samples:	11									Standard Deviation:	6								
Percent Data Captured:	100%									Maximum:	28								
										Minimum:	9								
NOTES																			
DEFINITIONS and CALCULATIONS																			
T _{av} = average temperature in degrees Celsius						P _o /P _s = pressure ratio of P _f and P _{av} = 1 - P _f /P _{av}													
P _{av} = average station pressure in millimeters of mercury						Q _s = look up table volumetric flow rate													
P _f = ((Temp in °Kelvin * Temp Slope)+Temp Int.)*1.868						Q _{std} = sample volumetric flow rate corrected to standard conditions													
P _f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868						V _{std} = sample volume corrected to standard conditions													



PM₁₀ Analysis

The Doe Run Company

Sampler ID P4601		Elvins Rivermines Site #1 by Office										
Sample Date	Filter ID	PM10 Filter Net Wt.	T _{av}	P _{av}	P _f	Ratio P _o /P _a	Q _a	Q _{std}	Elapsed Time	Sample Volume V _{std}	Mass Conc. PM ₁₀ μg/m ³	
2012	ID	g	C	mmHg	mmHg		m ³ /min	m ³ /min	hr	m ³		
8/1/2012	264654	0.0435	30	741.3	36.8	0.950	1.130	1.085	23.61	1536	28	
8/4/2012	264644	0.0361	28	741.6	36.5	0.951	1.128	1.089	23.62	1543	23	
8/7/2012	264634	0.0305	27	743.8	36.4	0.951	1.126	1.095	23.58	1549	20	
8/10/2012	264624	0.0554	22	742.6	35.8	0.952	1.119	1.104	23.61	1564	35	
8/13/2012	264616	0.0869	24	741.5	36.1	0.951	1.122	1.097	23.61	1553	56	
8/16/2012	264605	0.0323	26	742.4	36.2	0.951	1.124	1.096	23.63	1553	21	
8/19/2012	264096	0.0217	21	742.7	35.7	0.952	1.118	1.105	23.58	1564	14	
8/22/2012	264087	0.0416	24	745.1	36.1	0.952	1.123	1.102	23.56	1558	27	
8/25/2012	264076	0.0222	24	744.5	36.0	0.952	1.122	1.102	23.59	1560	14	
8/28/2012	264067	0.0378	24	745.6	36.0	0.952	1.121	1.105	23.62	1565	24	
8/31/2012	264058	0.0149	25	742.8	36.1	0.951	1.123	1.098	23.62	1557	10	

Valid Samples:	11
Scheduled Samples:	11
Percent Data Captured:	100%

Monthly Average:	25
Standard Deviation:	13
Maximum:	56
Minimum:	10

NOTES

Filter Blank	Nominal Airflow							Tolerance ≤ μm ³			
8/30/2012	264051	-0.0006	25	760.0	36.2	0.952	1.153	1.153	24.00	1660	-0.4

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius
P_{av} = average station pressure in millimeters of mercury
P_f = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868
P_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

P_o/P_a = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}
Q_a = look up table volumetric flow rate
Q_{std} = sample volumetric flow rate corrected to standard conditions
V_{std} = sample volume corrected to standard conditions



PM₁₀ Analysis

The Doe Run Company

Elvins Rivermines Site #2 Wood & Barton												
SAMPLER ID P4507	Sample Date 2012	Filter ID	PM10 Net Wt. g	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _{av}	Q _s m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Conc. PM ₁₀ µg/m ³
8/1/2012	264652	0.0450	30	741.3	36.8	0.950	1.151	1.104	23.88	1582	28	
8/4/2012	264642	0.0348	28	741.6	36.5	0.951	1.148	1.109	23.92	1592	22	
8/7/2012	264632	0.0317	27	743.8	36.4	0.951	1.147	1.115	23.91	1600	20	
8/10/2012	264622	0.0133	22	742.6	35.8	0.952	1.139	1.125	23.88	1611	8	
8/13/2012	264614	0.0195	24	741.5	36.1	0.951	1.143	1.117	23.94	1604	12	
8/16/2012	264603	0.0400	26	742.4	36.2	0.951	1.145	1.118	23.89	1599	25	
8/19/2012	264094	0.0217	21	742.7	35.7	0.952	1.139	1.126	23.99	1620	13	
8/22/2012	264085	0.0332	24	745.1	36.1	0.952	1.143	1.122	23.91	1610	21	
8/25/2012	264074	0.0248	24	744.5	36.0	0.952	1.142	1.122	23.92	1611	15	
8/28/2012	264065	0.0325	24	745.6	36.0	0.952	1.142	1.125	23.92	1614	20	
8/31/2012	264056	0.0142	25	742.8	36.1	0.951	1.143	1.118	23.94	1606	9	
											Valid Samples: 11	Monthly Average: 18
											Scheduled Samples: 11	Standard Deviation: 7
											Percent Data Captured: 100%	Maximum: 28
												Minimum: 8

NOTES

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

P_{av} = average station pressure in millimeters of mercury

P_f = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868

P_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

P_f/P_{av} = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}

Q_s = look up table volumetric flow rate

Q_{std} = sample volumetric flow rate corrected to standard conditions

V_{std} = sample volume corrected to standard conditions



PM₁₀ Analysis

The Doe Run Company

SAMPLER ID P2951								Elvins Rivermines Site #3 WTP											
Sample Date 2012	Filter ID	PM10 Filter Net Wt. g	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _s m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Conc. PM ₁₀ µg/m ³								
8/1/2012	264653	0.0431	30	741.3	36.8	0.950	1.159	1.112	23.41	1562	28								
8/4/2012	264643	0.0370	28	741.6	36.5	0.951	1.156	1.117	23.49	1574	24								
8/7/2012	264633	0.0194	27	743.8	36.4	0.951	1.155	1.123	23.47	1581	12								
8/10/2012	264623	0.0168	22	742.6	35.8	0.952	1.147	1.132	23.51	1597	10								
8/13/2012	264615	0.0233	24	741.5	36.1	0.951	1.151	1.125	23.48	1584	15								
8/16/2012	264604	0.0368	26	742.4	36.2	0.951	1.153	1.123	23.46	1581	23								
8/19/2012	264095	0.0217	21	742.7	35.7	0.952	1.147	1.134	23.47	1596	14								
8/22/2012	264086	0.0361	24	745.1	36.1	0.952	1.151	1.130	23.45	1590	23								
8/25/2012	264075	0.0281	24	744.5	36.0	0.952	1.150	1.131	23.49	1593	18								
8/28/2012	264066	0.0334	24	745.6	36.0	0.952	1.150	1.133	23.51	1598	21								
8/31/2012	264057	0.0151	25	742.8	36.1	0.951	1.151	1.126	23.48	1587	9								
Valid Samples: 11	Scheduled Samples: 11	Percent Data Captured: 100%									Monthly Average: 18 Standard Deviation: 6 Maximum: 28 Minimum: 9								
NOTES																			
DEFINITIONS and CALCULATIONS																			
T _{av} = average temperature in degrees Celcius	P _{av} /P _a = pressure ratio of P _f and P _{av} = 1 - P _f /P _{av}																		
P _{av} = average station pressure in millimeters of mercury	Q _s = look up table volumetric flow rate																		
P _f = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868	Q _{std} = sample volumetric flow rate corrected to standard conditions																		
P _f = ((Temp in °Kelvin * 0.0684)+(-0.4213))*1.868	V _{std} = sample volume corrected to standard conditions																		

BARR

PM₁₀ Analysis

The Doe Run Company

Sampler ID P1019										Big River Site #4 - QA		
Sample Date 2012	Filter ID	PM10 Filter Net Wt. g	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Conc. PM ₁₀ µg/m ³	
8/1/2012	264650	0.0452	30	741.3	36.8	0.950	1.172	1.124	23.84	1608	28	
8/7/2012	264630	0.0260	27	743.8	36.4	0.951	1.167	1.135	23.86	1625	16	
8/13/2012	264612	0.0258	24	741.5	36.1	0.951	1.163	1.137	23.84	1626	16	
8/19/2012	264092	0.0243	21	742.7	35.7	0.952	1.159	1.146	23.86	1640	15	
8/25/2012	264083	0.0308	24	744.5	36.0	0.952	1.163	1.143	23.87	1637	19	
8/31/2012	264063	0.0163	25	742.8	36.1	0.951	1.164	1.139	23.88	1631	10	
Valid Samples: 6	Scheduled Samples: 8	Percent Data Captured: 100%								Monthly Average: 17		
										Standard Deviation: 6		
										Maximum: 28		
										Minimum: 10		

NOTES

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees CelciusP_f/P_a = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}P_{av} = average station pressure in millimeters of mercuryQ_a = look up table volumetric flow rateP_f = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868Q_{std} = sample volumetric flow rate corrected to standard conditionsP_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868V_{std} = sample volume corrected to standard conditions

Lab Results (Lead and Cadmium)



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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0823
Date Received: 08/22/12
Analysis Method: 40 CFR §50
Appendix G

Location Elvins River
Mines

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
124160	8594823	08/01/12	#1 South - Office	96	< 10	08/24/12 - DS
124161	8594825	08/01/12	#2 North - W&B	64	< 10	08/24/12 - DS
124162	8594824	08/01/12	#3 East - WTP	46	< 10	08/24/12 - DS
124163	8594814	08/02/12	#1 South - Office	15	< 10	08/24/12 - DS
124164	8594816	08/02/12	#2 North - W&B	143	< 10	08/24/12 - DS
124165	8594815	08/02/12	#3 East - WTP	20	< 10	08/24/12 - DS
124166	8594805	08/03/12	#1 South - Office	125	< 10	08/30/12 - DS
124167	8594807	08/03/12	#2 North - W&B	33	< 10	08/30/12 - DS
124168	8594806	08/03/12	#3 East - WTP	26	< 10	08/30/12 - DS

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0838
Date Received: 08/28/12
Analysis Method: 40 CFR §50
Appendix G

Location Elvins River
Mines

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
124251	8607996	08/06/12	#1 South - Office	163	< 10	08/29/12 - DS
124252	8607998	08/06/12	#2 North - W&B	165	< 10	08/29/12 - DS
124253	8607997	08/06/12	#3 East - WTP	11	< 10	08/29/12 - DS
124254	8607986	08/07/12	#1 South - Office	29	< 10	08/29/12 - DS
124255	8607988	08/07/12	#2 North - W&B	44	< 10	08/29/12 - DS
124256	8607987	08/07/12	#3 East - WTP	17	< 10	08/29/12 - DS
124257	8607977	08/08/12	#1 South - Office	349	< 10	08/29/12 - DS
124258	8607979	08/08/12	#2 North - W&B	47	< 10	08/29/12 - DS
124259	8607978	08/08/12	#3 East - WTP	103	< 10	08/29/12 - DS
124260	8607968	08/09/12	#1 South - Office	461	< 10	08/29/12 - DS
124261	8607970	08/09/12	#2 North - W&B	< 10	< 10	08/29/12 - DS
124262	8607969	08/09/12	#3 East - WTP	11	< 10	08/29/12 - DS
124263	8607958	08/10/12	#1 South - Office	515	< 10	08/29/12 - DS
124264	8607960	08/10/12	#2 North - W&B	12	< 10	08/29/12 - DS
124265	8607959	08/10/12	#3 East - WTP	19	< 10	08/29/12 - DS

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0850
Date Received: 08/30/12
Analysis Method: 40 CFR §50
Appendix G

Location Elvins River
Mines

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
124311	8607948	08/13/12	#1 South - Office	928	11	09/06/12 - DS
124312	8607950	08/13/12	#2 North - W&B	13	< 10	09/06/12 - DS
124313	8607949	08/13/12	#3 East - WTP	246	< 10	09/06/12 - DS
124314	8607939	08/14/12	#1 South - Office	510	< 10	09/06/12 - DS
124315	8607941	08/14/12	#2 North - W&B	22	< 10	09/06/12 - DS
124316	8607940	08/14/12	#3 East - WTP	27	< 10	09/06/12 - DS
124317	8607931	08/15/12	#1 South - Office	26	< 10	09/06/12 - DS
124318	8607933	08/15/12	#2 North - W&B	111	< 10	09/06/12 - DS
124319	8607932	08/15/12	#3 East - WTP	12	< 10	09/06/12 - DS
124320	8607920	08/16/12	#1 South - Office	138	< 10	09/06/12 - DS
124321	8607922	08/16/12	#2 North - W&B	86	< 10	09/06/12 - DS
124322	8607921	08/16/12	#3 East - WTP	143	< 10	09/06/12 - DS
124323	8607912	08/17/12	#1 South - Office	39	< 10	09/06/12 - DS
124324	8607914	08/17/12	#2 North - W&B	< 10	< 10	09/05/12 - DS
124325	8607913	08/17/12	#3 East - WTP	39	< 10	09/05/12 - DS

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0921
Date Received: 09/12/12
Analysis Method: 40 CFR §50
Appendix G

Location Elvins River
Mines

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
124484	8607901	08/20/12	#1 South - Office	459	< 10	09/19/12 - DS
124485	8607903	08/20/12	#2 North - W&B	22	< 10	09/19/12 - DS
124486	8607902	08/20/12	#3 East - WTP	53	< 10	09/19/12 - DS
124487	8611292	08/21/12	#1 South - Office	117	< 10	09/19/12 - DS
124488	8611294	08/21/12	#2 North - W&B	53	< 10	09/19/12 - DS
124489	8611293	08/21/12	#3 East - WTP	122	< 10	09/19/12 - DS
124490	8611283	08/22/12	#1 South - Office	752	< 10	09/19/12 - DS
124491	8611285	08/22/12	#2 North - W&B	59	< 10	09/19/12 - DS
124492	8611284	08/22/12	#3 East - WTP	302	< 10	09/19/12 - DS
124493	8611274	08/23/12	#1 South - Office	162	< 10	09/19/12 - DS
124494	8611276	08/23/12	#2 North - W&B	62	< 10	09/19/12 - DS
124495	8611275	08/23/12	#3 East - WTP	66	< 10	09/19/12 - DS
124496	8611264	08/24/12	#1 South - Office	28	< 10	09/19/12 - DS
124497	8611265	08/24/12	#2 North - W&B	83	< 10	09/19/12 - DS
124498	8611266	08/24/12	#3 East - WTP	64	< 10	09/19/12 - DS

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0922
Date Received: 09/14/12
Analysis Method: 40 CFR §50
Appendix G

Location Elvins River
Mines

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
124531	8611255	08/27/12	#1 South - Office	599	< 10	09/27/12 - DS
124532	8611257	08/27/12	#2 North - W&B	52	< 10	09/27/12 - DS
124533	8611256	08/27/12	#3 East - WTP	47	< 10	09/27/12 - DS
124534	8611246	08/28/12	#1 South - Office	106	< 10	09/27/12 - DS
124535	8611248	08/28/12	#2 North - W&B	12	< 10	09/27/12 - DS
124536	8611247	08/28/12	#3 East - WTP	18	< 10	09/27/12 - DS
124537	8611237	08/29/12	#1 South - Office	164	< 10	09/27/12 - DS
124538	8611239	08/29/12	#2 North - W&B	11	< 10	09/27/12 - DS
124539	8611238	08/29/12	#3 East - WTP	21	< 10	09/27/12 - DS
124540	8611223	08/30/12	#1 South - Office	< 10	< 10	09/27/12 - DS
124541	8611226	08/30/12	#1 South - Office	41	< 10	09/27/12 - DS
124542	8611228	08/30/12	#2 North - W&B	13	< 10	09/27/12 - DS
124543	8611227	08/30/12	#3 East - WTP	24	< 10	09/27/12 - DS
124544	8611216	08/31/12	#1 South - Office	< 10	< 10	09/27/12 - DS
124545	8611218	08/31/12	#2 North - W&B	< 10	< 10	09/27/12 - DS
124546	8611217	08/31/12	#3 East - WTP	< 10	< 10	09/27/12 - DS

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0823
Date Received: 08/22/12
Analysis Method: 40 CFR §50
Appendix G

Location Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
124156	8594826	08/01/12	#4 Primary	47	< 10	08/24/12 - DS
124157	8594817	08/02/12	#4 Primary	45	< 10	08/24/12 - DS
124158	8594827	08/02/12	#4 QA	52	< 10	08/24/12 - DS
124159	8594808	08/03/12	#4 Primary	21	< 10	08/24/12 - DS

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
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Chain of Custody No.: 12-0838
Date Received: 08/28/12
Analysis Method: 40 CFR §50
Appendix G

Location Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
124244	8607999	08/06/12	#4 Primary	30	< 10	08/29/12 - DS
124245	8607989	08/07/12	#4 Primary	23	< 10	08/29/12 - DS
124246	8608000	08/07/12	#4 QA	17	< 10	08/29/12 - DS
124247	8607980	08/08/12	#4 Primary	42	< 10	08/29/12 - DS
124248	8607971	08/09/12	#4 Primary	26	< 10	08/29/12 - DS
124249	8607972	08/09/12	#4 QA	28	< 10	08/29/12 - DS
124250	8607961	08/10/12	#4 Primary	15	< 10	08/29/12 - DS

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
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Chain of Custody No.: 12-0850
Date Received: 08/30/12
Analysis Method: 40 CFR §50
Appendix G

Location Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
124304	8607951	08/13/12	#4 Primary	48	< 10	09/06/12 - DS
124305	8607942	08/14/12	#4 Primary	72	< 10	09/06/12 - DS
124306	8607952	08/14/12	#4 QA	57	< 10	09/06/12 - DS
124307	8607934	08/15/12	#4 Primary	77	< 10	09/06/12 - DS
124308	8607923	08/16/12	#4 Primary	56	< 10	09/06/12 - DS
124309	8607924	08/16/12	#4 QA	57	< 10	09/06/12 - DS
124310	8607915	08/17/12	#4 Primary	34	< 10	09/06/12 - DS

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
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Chain of Custody No.: 12-0921
Date Received: 09/12/12
Analysis Method: 40 CFR §50
Appendix G

Location Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
124477	8607904	08/20/12	#4 Primary	51	< 10	09/19/12 - DS
124478	8611295	08/21/12	#4 Primary	68	< 10	09/19/12 - DS
124479	8607905	08/21/12	#4 QA	72	< 10	09/19/12 - DS
124480	8611286	08/22/12	#4 Primary	80	< 10	09/19/12 - DS
124481	8611277	08/23/12	#4 Primary	108	< 10	09/19/12 - DS
124482	8611278	08/23/12	#4 QA	110	< 10	09/19/12 - DS
124483	8611267	08/24/12	#4 Primary	32	< 10	09/19/12 - DS

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
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Chain of Custody No.: 12-0922
Date Received: 09/14/12
Analysis Method: 40 CFR §50
Appendix G

Location Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
124524	8611258	08/27/12	#4 Primary	52	< 10	09/27/12 - DS
124525	8611249	08/28/12	#4 Primary	30	< 10	09/27/12 - DS
124526	8611259	08/28/12	#4 QA	29	< 10	09/27/12 - DS
124527	8611240	08/29/12	#4 Primary	83	< 10	09/27/12 - DS
124528	8611229	08/30/12	#4 Primary	20	< 10	09/27/12 - DS
124529	8611230	08/30/12	#4 QA	19	< 10	09/27/12 - DS
124530	8611219	08/31/12	#4 Primary	< 10	< 10	09/27/12 - DS

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Meteorological Data

Meteorological Report
The Doe Run Company
Wind Speed

Average Interval: 01 Hour

Units: mph

Sampling Frequency: 01 Second

Site Name: Rivermines

2012	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Max	Avg
1-Aug	2.1	1.3	0.8	0.8	1.3	0.5	2.3	2.6	2.8	2.2	1.5	3.1	2.5	3.0	2.5	3.8	3.7	4.2	3.8	3.0	3.6	1.8	0.9	0.6	4.2	2.3	
2-Aug	0.7	0.5	0.0	0.2	0.5	1.0	2.4	2.0	3.3	5.2	5.3	4.2	3.8	6.0	9.1	7.4	4.6	1.5	2.9	2.5	1.9	1.9	1.3	1.2	9.1	2.9	
3-Aug	0.0	2.3	2.8	1.1	0.2	0.4	1.4	2.3	2.2	2.6	3.9	3.6	3.1	4.6	4.9	4.9	3.7	2.2	2.2	1.3	1.6	1.7	4.2	3.4	4.9	2.5	
4-Aug	2.2	1.8	1.5	0.8	2.3	2.1	2.5	2.0	5.1	4.2	5.6	5.9	7.9	7.3	8.8	6.9	8.1	4.8	4.6	3.6	4.4	8.3	6.4	4.2	8.8	4.5	
5-Aug	4.6	2.6	2.2	1.0	0.7	1.4	1.5	1.1	2.4	4.7	7.4	8.1	6.3	5.2	3.8	3.9	4.2	3.9	1.7	0.4	0.1	0.2	0.3	0.7	8.1	2.9	
6-Aug	0.6	0.4	1.6	0.6	0.7	0.5	0.5	0.8	0.7	2.5	2.9	2.8	3.7	3.4	4.1	2.9	2.7	4.1	3.4	0.9	0.8	0.2	0.2	0.4	4.1	1.7	
7-Aug	0.5	1.0	0.3	0.9	0.8	0.1	0.5	0.2	0.4	1.8	2.9	3.5	3.9	4.0	3.4	2.8	3.7	3.7	2.4	0.3	0.2	0.2	0.2	0.2	4.0	1.6	
8-Aug	0.4	0.3	0.1	0.4	0.1	0.4	0.1	0.4	2.3	3.0	3.1	2.4	3.2	3.5	3.3	4.9	5.0	3.0	5.6	2.2	1.8	1.2	2.7	0.8	5.6	2.1	
9-Aug	2.0	1.1	0.6	0.9	0.8	0.4	0.3	0.5	1.6	1.8	2.2	2.7	3.5	3.8	3.7	5.6	7.1	6.4	4.3	3.0	3.8	8.3	7.6	5.9	8.3	3.2	
10-Aug	4.4	2.2	0.8	0.0	0.5	3.3	5.2	7.0	8.9	7.7	6.8	7.9	8.1	7.8	8.0	9.0	9.4	7.7	5.4	3.1	1.4	0.4	0.4	0.4	9.4	4.8	
11-Aug	0.1	1.0	0.2	0.1	0.1	0.0	0.1	0.7	1.9	4.1	4.7	4.7	4.1	4.5	4.7	4.1	2.6	3.0	2.1	0.5	0.4	0.2	0.6	0.0	4.7	1.8	
12-Aug	0.1	0.1	0.2	0.3	0.7	0.1	0.0	0.0	0.5	1.5	4.5	5.6	5.0	4.8	4.6	5.0	5.1	5.4	4.4	4.0	5.2	5.5	4.9	5.9	5.9	3.1	
13-Aug	8.9	7.8	4.9	5.2	0.7	0.9	0.9	1.5	2.0	3.4	3.7	4.8	7.6	7.2	6.7	4.6	5.5	7.1	7.6	7.0	6.8	6.3	5.4	4.8	8.9	5.1	
14-Aug	5.3	4.2	2.4	3.1	2.4	4.1	4.8	5.1	4.7	5.1	5.0	5.3	4.7	3.9	3.8	3.2	2.7	1.8	1.5	1.3	1.3	1.5	1.9	0.7	5.3	3.3	
15-Aug	0.4	0.6	0.5	0.2	0.2	0.0	0.1	0.4	1.7	2.0	2.6	3.1	3.3	4.9	3.6	4.4	3.5	5.8	8.5	6.3	6.4	5.9	4.1	1.0	6.5	2.8	
16-Aug	2.4	4.9	3.9	3.4	0.9	1.2	3.3	4.5	5.9	3.8	4.8	6.0	3.5	4.9	8.3	5.4	6.0	5.4	3.5	0.3	2.5	2.5	0.7	0.0	8.3	3.7	
17-Aug	0.6	2.9	1.2	0.4	3.1	2.2	2.5	4.3	5.5	5.4	4.5	3.7	5.2	5.3	5.7	6.5	6.2	4.9	3.1	0.2	0.0	0.2	0.4	0.3	6.5	3.1	
18-Aug	0.6	0.7	0.2	1.0	0.3	0.1	0.3	0.7	2.3	2.5	3.5	4.0	3.1	3.7	5.1	5.4	3.7	3.5	2.0	0.5	0.1	0.5	0.2	0.6	5.4	1.9	
19-Aug	0.6	0.1	0.1	0.4	0.5	0.3	0.2	0.3	1.1	2.4	3.4	4.4	4.6	3.4	4.9	6.6	3.6	4.5	3.0	1.9	0.3	0.2	0.0	0.3	6.6	2.0	
20-Aug	0.2	0.4	0.3	0.5	0.1	0.3	0.1	1.1	1.0	2.9	3.9	6.3	6.5	6.7	5.3	5.0	4.8	4.4	4.3	0.2	0.3	0.5	0.5	1.4	6.7	2.4	
21-Aug	2.2	2.0	2.1	1.5	0.5	0.3	0.2	1.5	2.0	2.7	2.6	3.8	3.5	6.0	5.4	3.4	4.3	1.2	2.7	1.8	0.5	0.1	0.2	0.1	6.0	2.1	
22-Aug	0.0	0.2	0.3	0.3	0.3	0.2	0.2	0.6	1.3	1.7	3.1	3.0	4.3	3.2	4.9	3.6	3.4	3.0	2.7	0.6	0.2	1.8	0.1	0.0	4.9	1.6	
23-Aug	0.0	0.1	0.0	0.4	0.3	0.8	0.4	0.2	1.5	1.6	4.1	3.3	2.3	3.4	2.6	1.9	1.5	2.1	0.9	0.3	1.2	2.3	1.2	0.4	4.1	1.4	
24-Aug	0.5	0.5	0.9	0.1	0.8	0.4	0.1	0.4	1.8	4.8	4.4	2.4	3.5	5.4	3.1	4.8	6.7	6.2	4.2	1.8	0.8	2.3	1.1	1.0	6.7	2.4	
25-Aug	0.5	1.9	1.4	1.4	0.0	0.4	3.0	3.2	7.1	8.1	8.1	8.5	8.2	7.8	8.7	8.9	7.5	4.5	4.4	5.5	3.8	5.1	4.9	4.0	8.9	4.9	
26-Aug	4.1	4.4	4.7	4.3	4.4	4.4	8.0	8.0	8.0	7.3	6.2	6.7	7.3	8.9	8.7	7.7	6.6	0.3	0.8	5.8	3.4	1.1	0.8	0.4	8.9	5.0	
27-Aug	2.6	4.4	2.2	0.3	0.1	0.1	0.1	2.6	4.1	4.7	3.9	4.0	5.7	6.2	7.3	6.9	7.0	4.3	0.5	0.0	0.1	0.2	0.1	0.3	7.3	2.8	
28-Aug	0.2	0.4	0.2	0.1	0.0	0.2	0.2	0.4	1.4	4.6	4.6	5.6	7.3	7.4	7.9	5.7	6.3	4.9	3.5	1.3	0.3	0.0	0.2	0.2	7.9	2.4	
29-Aug	0.6	0.2	0.4	0.4	0.3	0.2	0.1	0.5	1.4	4.3	4.5	4.9	5.9	6.2	5.5	5.8	4.2	3.7	1.4	0.2	0.1	0.0	0.1	0.1	6.2	2.1	
30-Aug	0.0	0.4	0.1	0.2	0.1	0.1	0.0	1.6	3.8	5.3	5.2	5.7	5.8	5.7	6.3	6.5	4.5	3.8	2.4	4.1	3.9	4.9	6.5	3.2			
31-Aug	5.3	5.5	4.7	4.3	4.5	3.4	4.2	5.2	5.4	4.9	5.5	5.7	6.3	7.8	9.2	8.6	5.8	4.0	2.8	4.5	3.5	4.0	7.1	7.4	9.2	5.4	
Maximum Hour//Monthly Average																										9.4	2.9
Total Hours In Month																										744	744
Valid Hours//Percent Data Captured																										100.0%	100.0%



Meteorological Report
The Doe Run Company
Wind Direction

Site Name: Rivermines

Average Interval: 01 Hour

Units: Degrees

Sampling Frequency: 01 Second

2012	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	24 Hour Avg
Day																										
1-Aug	250	191	192	191	213	220	10	19	350	294	147	1	11	5	332	68	79	71	77	113	172	178	327	176	153	
2-Aug	175	198	201	218	149	108	168	208	239	243	244	240	251	216	209	215	216	188	172	137	134	113	167	155	190	
3-Aug	202	77	93	40	39	208	187	173	177	11	117	96	97	151	106	126	69	71	94	79	111	137	183	186	116	
4-Aug	215	215	214	190	358	45	348	158	167	149	173	204	194	202	207	204	212	195	163	163	179	248	332	330	211	
5-Aug	184	220	195	324	271	254	252	281	325	345	1	6	18	12	29	19	3	6	33	178	194	190	188	188	155	
6-Aug	198	212	199	178	218	207	272	253	108	116	6	331	17	7	358	356	19	60	79	76	190	197	189	191	168	
7-Aug	211	214	197	215	188	196	248	227	91	315	329	70	63	189	227	47	79	70	92	113	352	184	192	205	178	
8-Aug	205	188	184	182	180	180	201	12	301	249	285	306	347	18	16	29	42	150	194	214	260	5	10	331	170	
9-Aug	24	118	209	157	217	252	190	258	305	359	335	12	24	1	328	338	332	350	343	331	328	344	342	337	243	
10-Aug	328	317	308	319	271	323	340	349	360	353	350	345	346	359	348	380	349	357	349	331	327	184	182	180	318	
11-Aug	209	214	183	179	208	214	208	240	359	14	13	354	350	354	359	50	41	32	50	83	188	201	184	184	186	
12-Aug	192	185	197	199	209	193	180	202	265	248	215	202	210	205	195	188	173	163	165	181	183	165	166	172	192	
13-Aug	179	188	193	205	6	36	15	327	298	288	287	297	315	308	299	295	308	313	321	321	331	326	331	333	255	
14-Aug	333	327	328	328	322	337	326	344	342	356	353	354	4	9	12	357	325	341	289	194	237	213	224	176	268	
15-Aug	177	184	190	203	189	174	201	24	132	95	39	193	227	192	207	205	221	197	182	179	183	183	194	219	175	
16-Aug	203	198	197	179	197	210	220	236	228	244	241	240	269	221	208	240	246	184	298	194	212	262	338	202	228	
17-Aug	318	353	43	7	339	358	338	349	354	4	5	345	351	332	336	352	355	359	13	188	187	188	185	181	171	243
18-Aug	200	201	179	221	207	207	224	332	79	57	36	39	54	32	7	14	18	60	90	108	121	191	198	188	128	
19-Aug	206	201	196	178	220	206	221	356	15	27	338	359	356	337	343	10	36	24	68	60	203	218	227	184	191	
20-Aug	183	186	181	205	185	188	221	242	272	322	297	333	333	339	2	355	336	333	7	192	199	198	210	212	230	
21-Aug	214	217	207	193	179	169	308	14	25	13	288	303	293	327	333	294	347	27	66	114	134	188	192	185	193	
22-Aug	156	201	178	173	165	180	208	300	248	237	14	24	26	334	17	9	49	67	80	145	158	142	16	0	130	
23-Aug	184	181	193	181	203	195	224	306	260	45	16	98	88	23	139	305	98	52	30	105	149	156	141	191	148	
24-Aug	201	192	234	208	201	218	253	288	266	237	225	209	201	171	147	184	165	182	176	178	183	167	153	147	198	
25-Aug	151	180	167	170	209	170	152	145	175	175	173	174	183	192	182	190	206	181	188	171	187	171	177	179	175	
26-Aug	179	180	184	194	198	190	198	201	191	203	197	208	218	207	203	200	204	232	237	195	191	175	252	199	202	
27-Aug	197	212	215	203	213	214	269	336	346	348	335	356	353	1	4	7	2	20	24	201	192	188	182	187	192	
28-Aug	184	178	180	190	191	177	249	203	7	44	45	22	32	16	48	32	32	63	78	145	198	201	181	183	120	
29-Aug	180	178	176	177	175	186	251	354	59	56	58	67	42	65	60	66	64	60	70	76	194	0	187	328	130	
30-Aug	232	183	194	176	175	174	191	196	64	113	132	116	132	116	111	104	124	151	154	169	148	161	159	165	152	
31-Aug	157	151	138	135	119	102	92	106	107	105	126	142	140	140	171	179	160	144	125	142	130	148	173	173	138	



Total Hours in Month: 744
 Valid Hours: 744
 Percent Data Captured: 100.0%

Meteorological Report

The Doe Run Company

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Site Name: Rivermines

Average Interval: 01 Hour
Units: Degrees

2012	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	24 Hour Avg
Day																										
1-Aug	18.3	8.6	15.1	30.4	19.8	19.3	30.0	46.1	60.3	45.2	63.1	33.3	71.6	43.4	68.4	57.3	33.0	33.8	27.7	22.0	43.6	28.3	25.5	12.1	36	
2-Aug	4.6	0.0	10.8	29.6	35.3	28.4	26.6	39.7	36.8	25.0	32.0	37.3	45.3	27.1	23.2	26.6	23.3	18.6	19.4	31.9	23.0	24.7	16.7	10.9	25	
3-Aug	18.0	28.2	18.9	6.6	21.7	20.5	33.7	40.9	40.8	0.5	54.7	46.1	43.8	41.7	28.4	27.0	36.2	33.7	26.9	22.0	29.4	17.3	25.4	22.5	29	
4-Aug	16.4	12.3	6.8	22.8	42.4	38.8	35.3	22.1	23.8	26.4	26.3	28.5	24.7	26.5	24.7	25.0	25.4	23.2	21.5	20.6	27.9	45.2	21.5	29.4	26	
5-Aug	32.8	48.0	36.2	22.3	27.0	28.0	30.9	24.4	20.9	27.9	21.5	23.7	28.2	35.9	40.1	45.0	31.9	21.9	20.9	11.0	0.8	1.9	1.6	6.7	25	
6-Aug	22.4	13.8	7.8	18.0	10.0	14.3	30.1	36.5	44.3	8.3	49.3	61.3	57.5	53.4	46.8	47.0	37.0	31.0	28.3	17.4	9.2	4.4	5.2	8.0	27	
7-Aug	15.7	6.4	12.6	9.6	1.9	15.7	10.9	21.3	49.3	11.1	53.1	47.1	46.2	44.6	50.0	40.2	52.0	29.4	23.0	7.9	17.0	3.8	1.3	6.1	24	
8-Aug	4.2	2.6	2.6	1.5	2.8	6.9	8.4	26.3	38.9	10.8	43.9	55.5	33.5	33.9	48.2	45.1	31.8	48.2	21.7	31.2	38.5	22.2	31.2	29.7	26	
9-Aug	18.7	13.1	30.6	23.4	17.6	4.5	27.4	34.5	40.7	22.5	42.0	56.3	44.9	54.1	40.0	27.3	24.6	19.7	16.7	10.8	16.1	17.0	19.6	22.4	27	
10-Aug	19.5	14.3	4.5	25.7	18.8	21.5	20.7	21.1	24.1	21.6	25.7	24.4	25.6	25.1	25.6	22.6	20.7	20.7	18.1	18.0	13.0	2.1	4.3	1.9	18	
11-Aug	13.9	4.1	1.9	2.8	0.3	6.5	29.7	35.0	39.9	3.4	36.2	40.5	50.9	50.5	58.3	37.8	45.4	30.1	27.8	9.1	11.5	4.3	1.5	0.8	23	
12-Aug	4.5	6.9	9.7	17.9	8.1	1.3	4.2	17.5	29.2	5.4	21.8	23.3	24.5	25.2	23.6	27.3	28.0	25.3	21.7	22.6	22.1	20.9	21.7	24.4	18	
13-Aug	23.0	24.7	38.3	19.1	33.0	9.9	27.9	48.5	43.5	22.1	42.4	42.1	32.6	36.0	38.4	41.7	38.5	30.4	28.4	23.2	20.0	20.6	21.2	21.5	30	
14-Aug	18.8	15.0	16.2	20.1	19.6	21.8	21.1	27.6	24.3	19.4	32.2	26.4	32.0	40.4	34.2	34.4	27.1	18.2	15.3	22.8	16.5	12.1	14.5	16.6	23	
15-Aug	7.2	14.0	1.7	6.7	0.4	5.1	26.2	48.2	57.5	9.8	48.5	52.1	67.6	44.6	43.0	43.1	42.1	25.6	22.9	19.1	18.8	19.7	20.7	21.5	28	
16-Aug	18.5	18.7	18.0	18.0	18.0	23.6	28.0	26.2	40.5	19.7	32.3	36.4	43.4	25.7	20.8	31.4	29.7	33.2	46.8	25.0	20.2	22.1	19.6	4.1	26	
17-Aug	21.3	20.7	13.1	15.5	18.6	17.8	20.3	25.0	23.9	10.0	29.4	38.1	32.3	35.5	31.2	22.2	24.8	25.9	20.1	3.3	1.9	2.2	7.5	1.9	19	
18-Aug	10.9	3.5	13.7	9.0	1.7	13.4	23.1	36.9	45.3	9.0	50.2	49.7	44.4	58.9	29.5	25.7	28.0	30.2	22.4	10.3	3.8	3.6	10.3	9.2	23	
19-Aug	6.0	2.9	3.0	9.8	9.8	11.0	14.2	33.9	38.1	12.1	41.7	38.6	27.9	42.7	32.0	27.2	37.4	30.6	29.8	27.5	5.6	10.4	0.1	6.8	21	
20-Aug	10.2	4.3	7.3	3.6	7.2	3.5	32.7	39.2	51.6	5.5	47.1	31.4	35.1	32.5	42.4	39.0	26.7	28.5	20.8	2.2	7.1	10.2	7.8	15.3	21	
21-Aug	17.4	19.9	16.0	10.4	1.7	8.1	18.8	29.8	27.8	20.4	46.0	50.4	41.3	29.4	28.2	38.7	23.6	15.0	27.0	24.9	9.0	1.2	2.3	0.3	21	
22-Aug	6.6	4.7	4.2	30.7	4.2	6.6	16.4	30.3	58.6	0.3	45.3	40.8	44.7	48.4	30.9	26.0	33.3	28.7	21.6	9.6	6.7	15.7	2.9	0.0	22	
23-Aug	2.8	0.5	13.5	7.7	11.0	12.1	14.0	43.1	29.7	0.5	32.4	42.6	41.4	40.6	40.9	29.4	28.5	29.6	13.5	7.4	17.2	17.1	16.9	2.8	21	
24-Aug	6.7	16.3	6.4	11.0	8.1	6.3	23.5	38.6	32.9	11.3	26.1	32.2	33.5	33.2	41.8	32.4	24.8	22.1	19.8	12.8	8.9	14.6	11.7	9.1	20	
25-Aug	16.2	18.4	18.8	4.3	12.4	20.1	26.2	27.4	25.1	6.7	24.8	24.1	25.0	26.0	25.2	24.4	24.4	23.7	23.2	22.7	22.0	23.7	22.9	24.1	21	
26-Aug	23.1	20.5	24.3	20.3	24.0	24.8	21.3	24.0	25.3	23.4	28.7	30.2	28.9	27.3	25.5	26.6	23.7	10.3	9.5	22.0	16.9	14.2	27.8	8.6	22	
27-Aug	22.4	15.8	9.5	5.5	8.8	8.8	20.4	17.1	18.0	15.6	23.4	22.6	25.2	23.0	23.2	23.6	21.4	22.6	9.7	2.9	0.7	1.1	0.9	10.6	15	
28-Aug	3.4	4.7	4.9	3.5	2.8	10.5	17.3	18.3	36.9	3.8	36.4	30.1	34.3	28.6	35.6	32.4	30.4	29.5	14.3	6.2	0.4	9.0	3.4	2.0	17	
29-Aug	1.5	1.7	2.2	4.7	5.6	6.1	13.7	30.2	32.2	1.9	42.0	36.1	38.3	35.1	36.1	33.9	34.6	29.8	18.8	6.6	1.8	0.0	1.3	1.3	17	
30-Aug	15.8	0.9	1.2	1.0	0.8	3.8	2.7	28.3	36.8	0.0	34.2	33.4	36.6	34.1	34.5	35.6	28.3	28.0	24.3	20.4	19.3	22.0	25.5	25.1	21	
31-Aug	28.1	28.7	31.2	27.9	28.0	28.7	28.9	27.6	28.4	25.5	27.8	28.1	28.6	27.2	28.5	21.5	21.9	22.4	25.6	25.0	29.1	26.4	23.2	21.3	27	

BARR																								Total Hours in Month	744
																								Valid Hours	744
																								Percent Data Captured	100.0%

Meteorological Report
The Doe Run Company
Temperature

Site Name: Rivermines

Average Interval: 01 Hour

Units: Deg. C

Sampling Frequency: 01 Second

2012	Hour	24 Hour																									
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Max
1-Aug	26	25	23	22	22	22	25	27	30	30	32	34	36	37	37	37	37	37	36	35	33	29	28	27	26	37.2	29.7
2-Aug	25	24	23	22	22	23	27	29	33	35	34	35	35	34	35	35	35	34	33	33	32	30	29	28	27	35.3	29.9
3-Aug	26	26	26	25	24	23	28	28	30	32	33	35	35	37	31	30	30	30	30	30	29	28	28	29	28	36.7	29.2
4-Aug	28	27	27	25	26	25	25	24	24	24	25	27	29	30	33	33	34	35	32	31	30	29	28	26	24	34.6	27.9
5-Aug	24	24	24	23	23	23	23	24	24	24	25	27	28	29	30	30	31	31	30	29	24	21	20	19	18	31.0	25.1
6-Aug	18	17	17	16	16	16	19	23	27	29	31	32	32	33	33	34	33	32	30	28	24	22	21	20	20	33.7	25.2
7-Aug	19	19	18	17	17	16	20	24	29	33	33	34	35	36	36	36	36	36	35	33	29	25	23	21	20	36.3	26.8
8-Aug	20	19	18	18	17	17	21	21	26	31	35	36	36	37	37	38	37	36	32	29	28	25	24	25	25	37.6	27.8
9-Aug	25	23	21	20	20	19	21	25	28	30	31	32	33	34	34	34	34	33	31	29	27	27	26	25	25	34.0	27.6
10-Aug	23	22	20	19	18	19	19	21	22	23	24	25	26	26	27	27	26	25	24	22	19	18	16	15	27.0	21.8	
11-Aug	14	14	13	12	12	11	15	20	23	24	26	27	28	29	29	30	29	29	27	24	20	18	16	16	29.6	21.1	
12-Aug	15	14	14	14	15	15	16	19	22	24	25	26	27	27	26	27	27	27	26	24	24	23	22	22	22	27.2	21.7
13-Aug	23	23	24	24	19	19	20	24	27	28	30	30	29	29	28	26	26	26	25	24	23	22	22	22	21	30.2	24.4
14-Aug	21	20	19	18	18	18	19	19	20	21	23	24	25	26	27	26	26	25	24	23	22	21	19	18	17	26.6	21.7
15-Aug	16	15	14	13	13	13	16	20	24	27	29	31	32	33	33	34	33	32	30	28	27	25	25	23	23	33.7	24.4
16-Aug	23	24	24	23	22	22	26	28	30	33	36	37	35	29	30	26	21	21	21	21	21	21	21	20	36.5	25.6	
17-Aug	20	20	20	19	19	18	18	19	21	22	23	24	26	27	27	27	27	26	25	20	17	15	14	13	27.4	21.1	
18-Aug	12	12	11	11	10	10	13	17	21	24	26	26	27	27	27	27	26	25	24	22	19	17	16	16	27.3	19.5	
19-Aug	16	15	15	15	14	14	16	20	24	26	28	27	28	28	29	27	27	27	26	25	23	21	18	17	15	28.5	21.5
20-Aug	14	14	13	12	12	12	15	20	24	27	28	28	28	29	29	28	28	28	26	21	18	17	16	15	28.9	20.9	
21-Aug	15	14	13	13	12	12	15	18	22	26	30	32	32	32	31	33	32	31	29	26	23	20	18	17	17	32.9	22.8
22-Aug	16	15	14	13	13	12	15	21	27	30	31	33	33	35	34	34	34	32	30	27	23	23	20	19	34.8	24.5	
23-Aug	18	17	16	15	15	15	18	23	28	30	33	34	34	35	36	35	35	33	31	29	27	27	25	21	36.0	26.3	
24-Aug	20	19	19	19	18	18	21	26	31	32	31	31	31	31	32	33	32	31	29	27	25	25	24	24	32.8	26.2	
25-Aug	22	22	22	22	20	19	22	25	27	28	28	28	28	28	28	27	26	23	22	22	21	21	21	21	28.3	23.9	
26-Aug	21	21	21	22	22	22	23	23	23	25	26	27	29	29	30	30	29	25	25	24	23	23	23	23	30.2	24.5	
27-Aug	23	23	23	22	22	23	23	23	24	26	27	28	29	29	30	30	29	27	23	21	20	19	18	18	30.1	24.3	
28-Aug	17	16	16	15	15	14	16	21	25	28	30	31	32	32	32	32	31	29	28	22	20	19	18	18	32.0	23.8	
29-Aug	17	16	16	15	14	14	16	20	24	28	29	31	32	33	33	33	32	30	26	22	21	19	18	18	33.3	23.9	
30-Aug	17	16	16	15	14	14	16	21	25	30	32	33	34	35	35	35	34	32	30	28	27	26	26	26	35.3	26.2	
31-Aug	26	26	26	26	25	24	24	24	24	24	24	24	26	27	26	23	23	23	24	24	24	24	24	24	26.8	24.5	



Maximum Hour//Monthly Average	37.6	24.8
Total Hours in Month	744	
Valid Hours	744	
Percent Data Captured	100.0%	

